

Subcommittee Examines Relationship Between Education and Nanotechnology (October 2, 2007)

Washington, D.C. - It is clear that advances in science have greatly impacted economic prosperity and the quality of life in the United States. The emerging field of nanoscale science and engineering (NSSE) is the science of manipulating matter at the molecular level and holds tremendous potential, and has already led to medicine-dispensing contact lenses, stain-resistant clothing, and many other advances in science, health, and consumer products.

For the United States to stay at the forefront of scientific research and development in the NSSE will require talented engineers and scientists, and a scientifically literate public, able to exploit and understand this new science.

Today, Members of the Science & Technology Committee's Research and Science Education Subcommittee examined how the U.S. can stay at the forefront of scientific research and development in the NSSE field, how to support education programs focusing on nanotechnology, and how to create a new generation of engineers and scientists researching these complex concepts.

During the hearing, Subcommittee Chairman Brian Baird (WA-03) re-affirmed the importance of educating students and the public about nanotechnology.

Equipping students with the skills they need to help our country maintain its leadership in the global marketplace is essential, said Chairman Baird. Nanotechnology is one of the next frontiers of science and research in this field directly impacts all sectors of society from health care to energy to national security. As countries like China and India invest in nanotechnology education initiatives, our country too must do all it can to support these research activities to keep us competitive in a 21st Century economy.

To address these needs, the Subcommittee heard from witnesses on how access to high-tech equipment may benefit high school, undergraduate, and graduate students; and how research in these fields supports the nation's economy.

In addition, the witnesses addressed legislation aimed at supporting nanoscale science and engineering educational activities. H.R. 2436, the Nanotechnology in Schools Act, introduced by fellow Committee Member Rep. Darlene Hooley (D-OR), would direct the National Science Foundation to create a grant program making it possible for high schools, two-year colleges, undergraduate serving programs, and informal science education centers to purchase nanotechnology equipment for educational purposes. In addition to equipment, the funds could be used for relevant software, as well as teacher and faculty professional development, and student educational activities.

Nanotechnology has already led to new cancer treatments, more powerful computers, and energy conversion and storage breakthroughs, said Rep. Hooley. Introducing students to nanotechnology will excite them about a future in science and technology, ensuring the next generation of American innovators.

Since 2001, the National Nanotechnology Initiative (NNI) has funded more than \$6.918.1 billion in research and related activities in NSSE across the federal science agencies. As part of its work on this initiative, the National Science Foundation (NSF) supports a number of educational activities designed to teach K-16 students, science teachers, faculty members, and the general public about nanotechnology.

Major NSSE education initiatives include the National Center for Learning and Teaching (NCLT) in Nanoscale Science and Engineering and the Nanoscale Informal Science Education (NISE) Network. NCLT is a consortium of five universities with a mission to foster the Nation's talent in NSSE by developing methods for learning and teaching through inquiry and design of nanoscale materials and applications. They perform research and serve as a clearinghouse for information regarding NSSE curriculum, teaching methodologies, and professional development for the undergraduate and K-12 levels.

Witnesses at the hearing included: Mr. David Ucko, National Science Foundation, Deputy Division Director of the Education and Human Resource Division on Research and Learning; Dr. Navida Ganguly, Head of the Science Department, Oak Ridge High School, Oak Ridge, TN; Dr. Hamish Fraser, Ohio Regents Eminent Scholar and Professor, Department of Materials Science Engineering, the Ohio State University; Dr. Ray Vandiver, Vice President of New Project Development, Oregon Museum of Science and Industry; Mr. Sean Murdock, Executive Director, NanoBusiness Alliance; Dr. Gerald Wheeler, Executive Director, National Science Teachers Association.

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